



City of Burnsville

Comprehensive Plan Advisory Panel – June 19, 2017

Water Resources Management Plan (WRMP) and Wetland Protection and Management Plan (WPMP) 2017 Update

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SEH



Presentation Overview

- Reason for Plan Update
- Steps and Process to Date
- Public Input
- Plan Overview

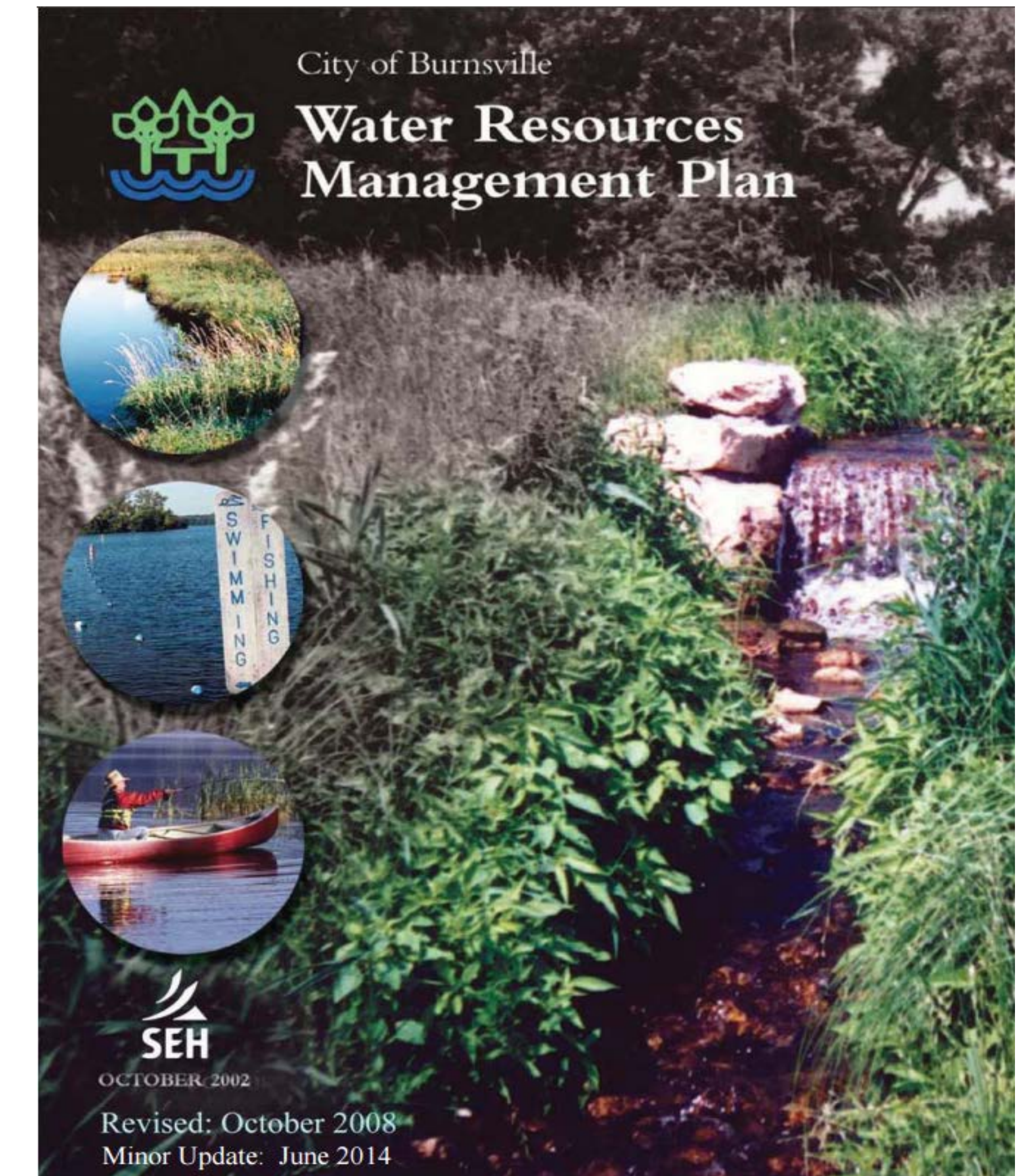
Reason for Plan Updates – Why now?

Minnesota Rules were updated in July of 2015 and now require that:

- Must be revised once every ten years
- Aligned with Comprehensive Plan schedule
- Must adopt the plan between January 1, 2017 and December 31, 2018.

Previous Versions of the City's Water Resources Management Plan:

- Original Plan – The Drainage Plan For Burnsville, Minn. – 1966
- First Local Water Plan – Comprehensive SWMP - 1994
- Second Generation Plan – Water Resources Management Plan – 2002
 - Priority Issues: Water Quality and Water Quantity (Flooding)
- Current Plan – Water Resources Management Plan – 2008
 - Updates to Water Quality Goals and Development Design Standards



** While the Wetland Plan does not follow the same state rule requirements, updating the Wetland Plan now provides some efficiencies in these related program areas.*



Steps and Process to Date

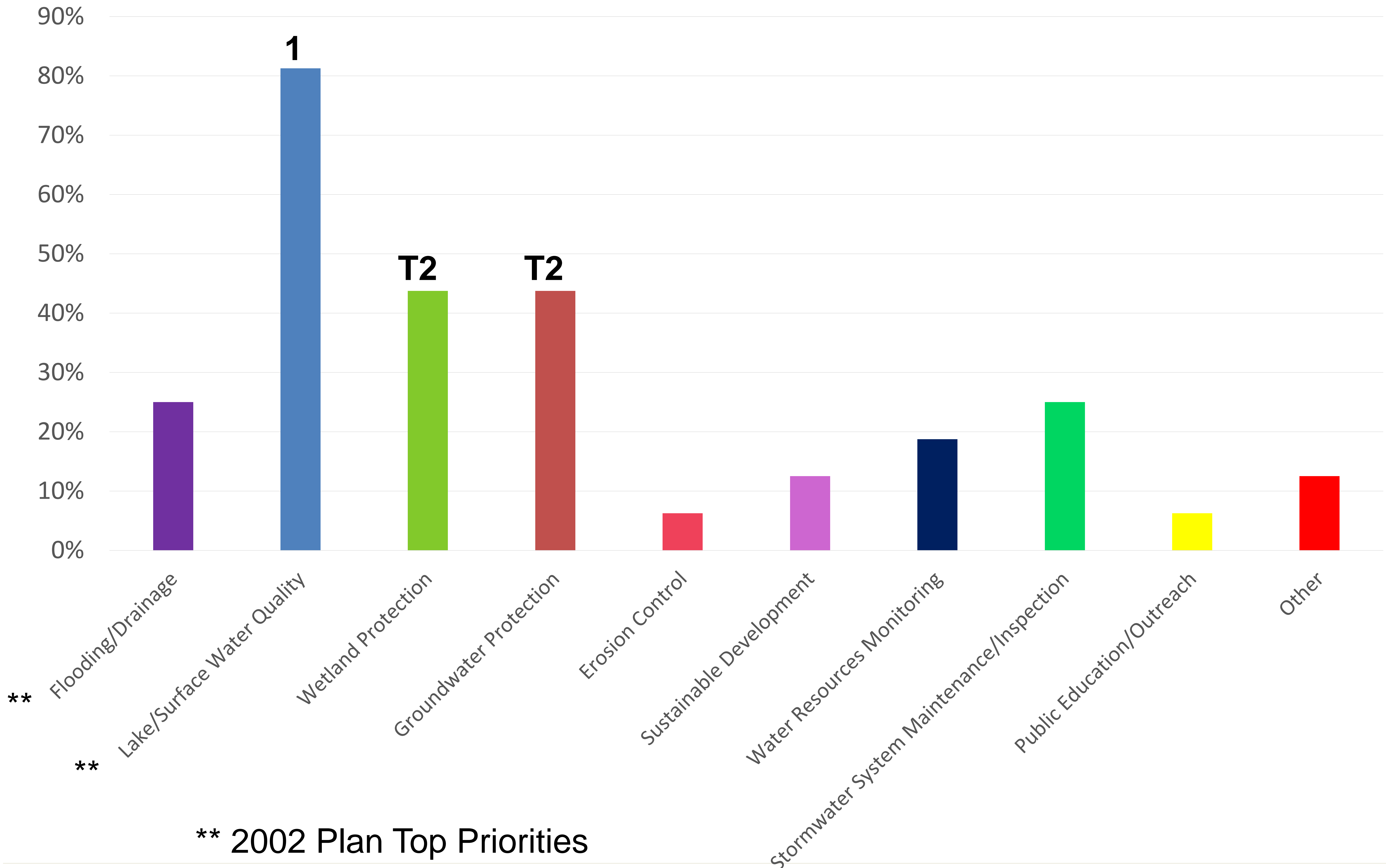
Open House #1	June 2016
Public Input Survey	June - July 2016
PNRC Meeting #1	July 2016
City Council	July 2016
Open House #2	February 22, 2017
PNRC Meeting #2.....	March 6, 2017
Agency Submittal	June 2017
Adoption	Fall 2017





Public Input - Survey

Top Priorities



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** 2002 Plan Top Priorities



Public Input - biggest lake concern?

Nuisance Vegetation

Water
Clarity



Filamentous
algae



Watermilfoil



Shoreline
Buffers



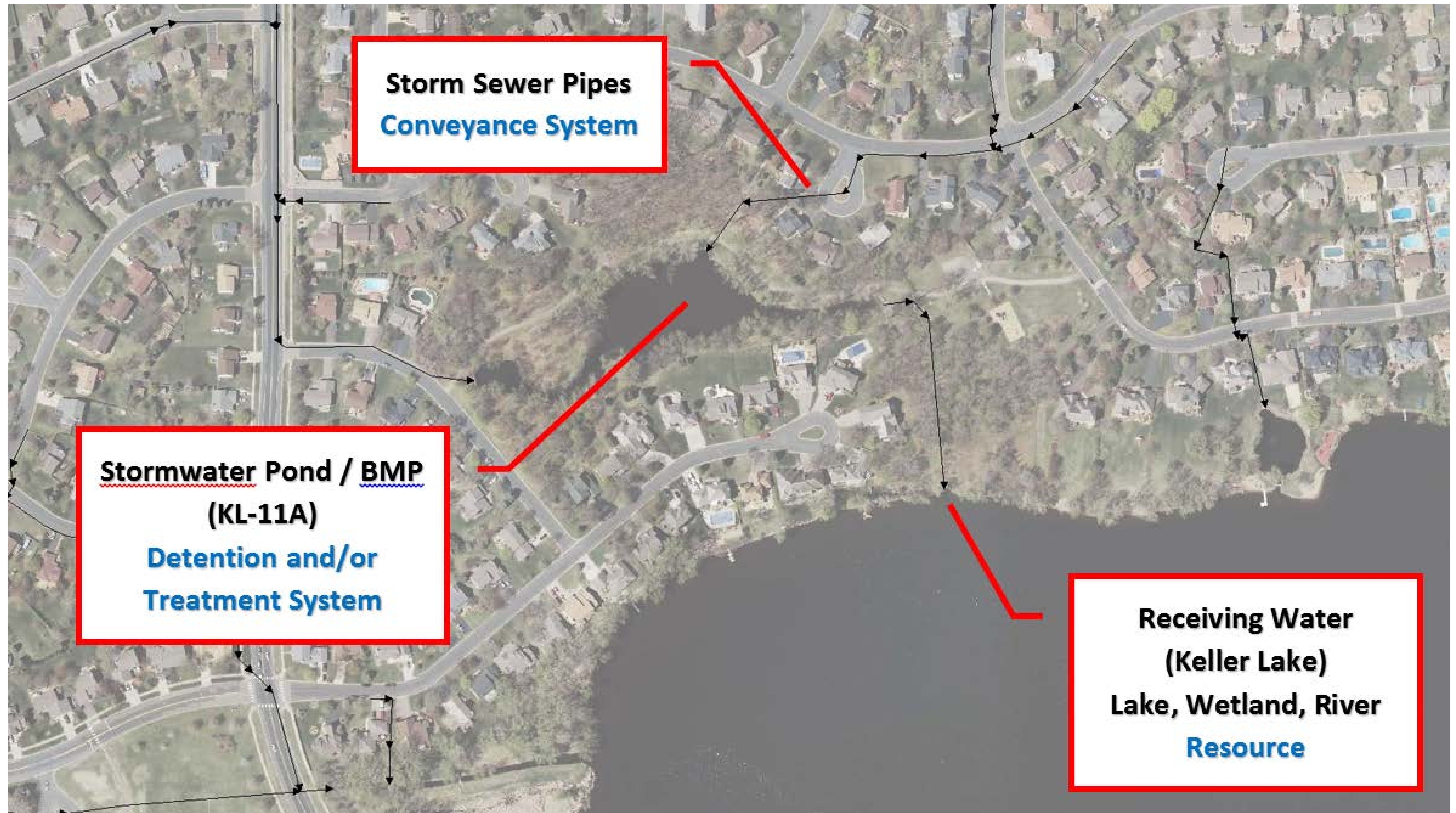
Coontail



Curly-leaf
pondweed



Surface Water System – Ponds, Lakes, Wetlands



Trout Streams

Black Dog Creek, Unnamed Streams 1, 4 and 7 Dakota County
Temperature Logger placements March 20 - October 21, 2015

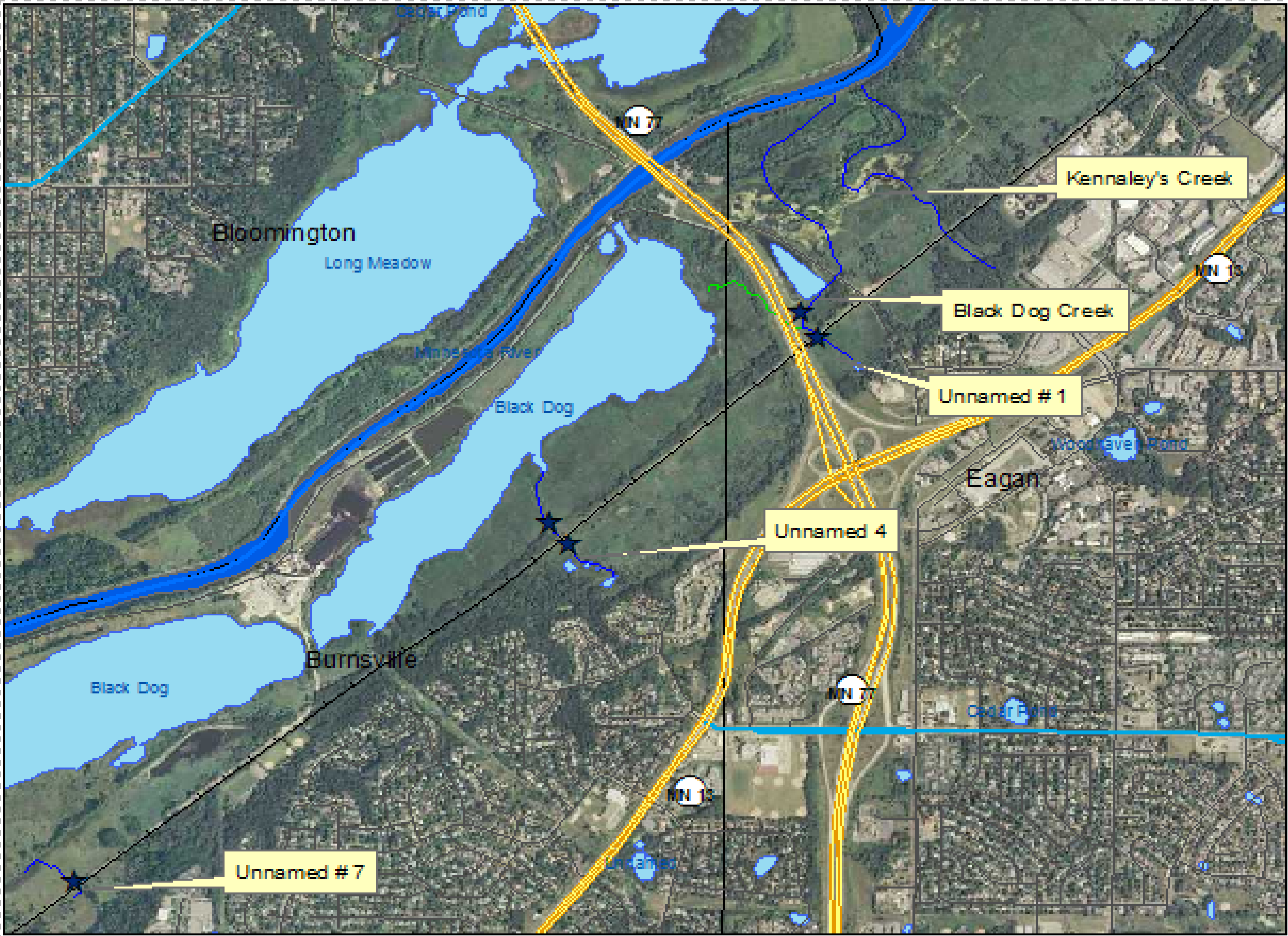
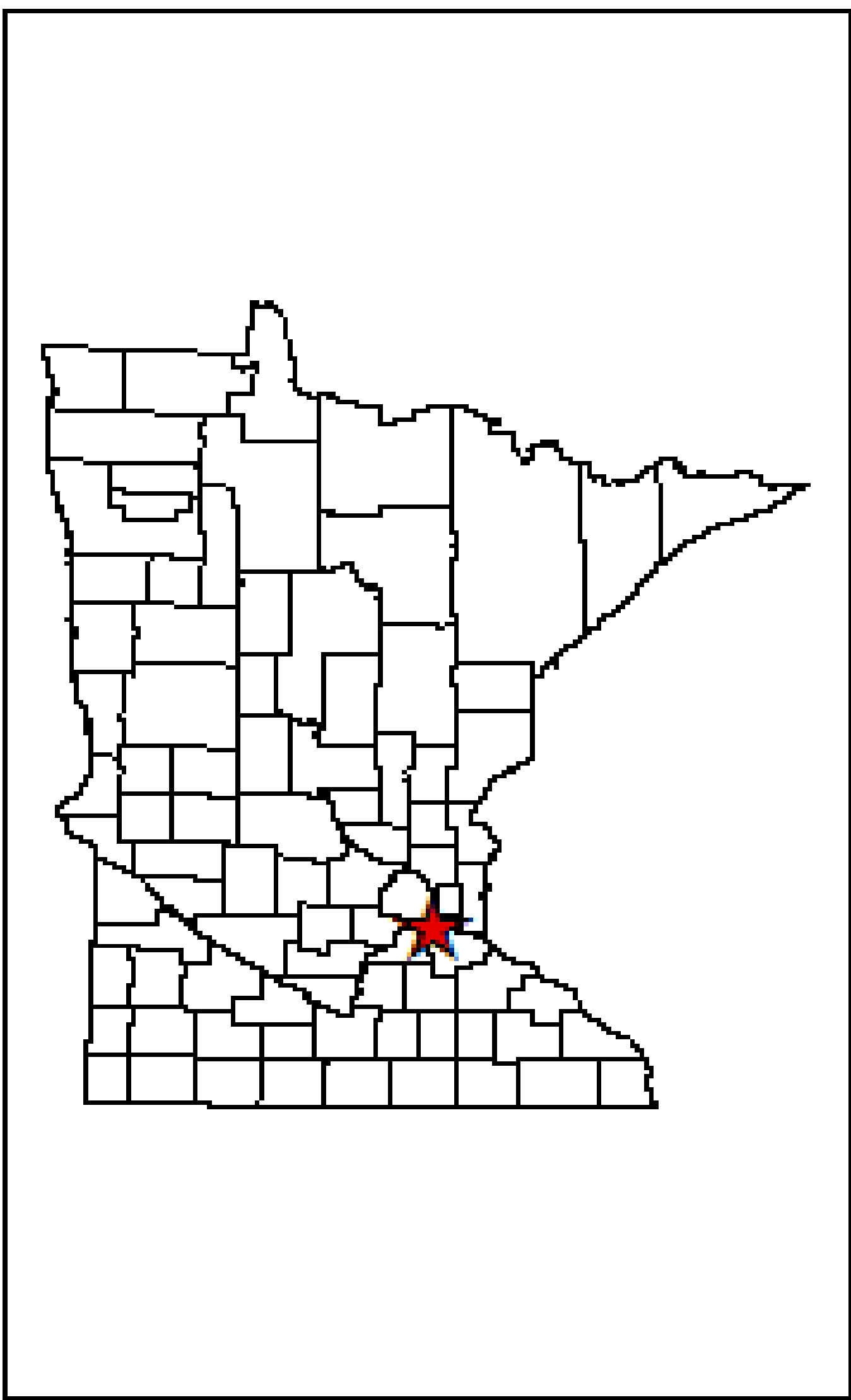
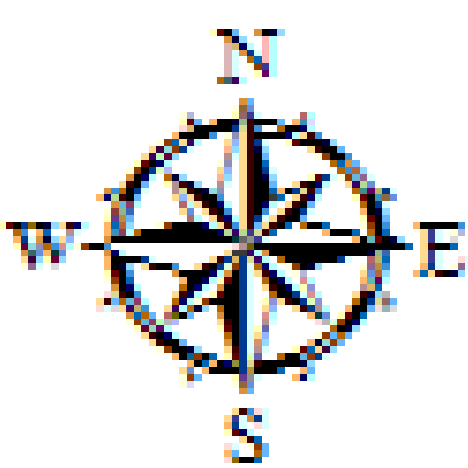
Legend

Trout Stream

Trout Stream Tributary

★

Temperature Monitoring Station



From: DNR 2015
Monitoring Summary

Goals and Policies

The plan utilizes the following framework for goals, policies, and standards:

- **Goals** are a desired end toward which water management efforts are directed. Each goal has several corresponding policies.
- **Policies** are governing principles that provides the means for achieving established goals.
- **Standards** are an extension of the policies. They provide specific, detailed guidance regarding water management practices. Plan standards are included in the Appendix of the Plan.
- **Goals** are consistent with previous plan versions
- **Policies** were made more concise and less redundant with existing ordinances and standards
- Updates to current regulatory requirements (**standards**)
 - Proposed stormwater management standards similar to MIDS

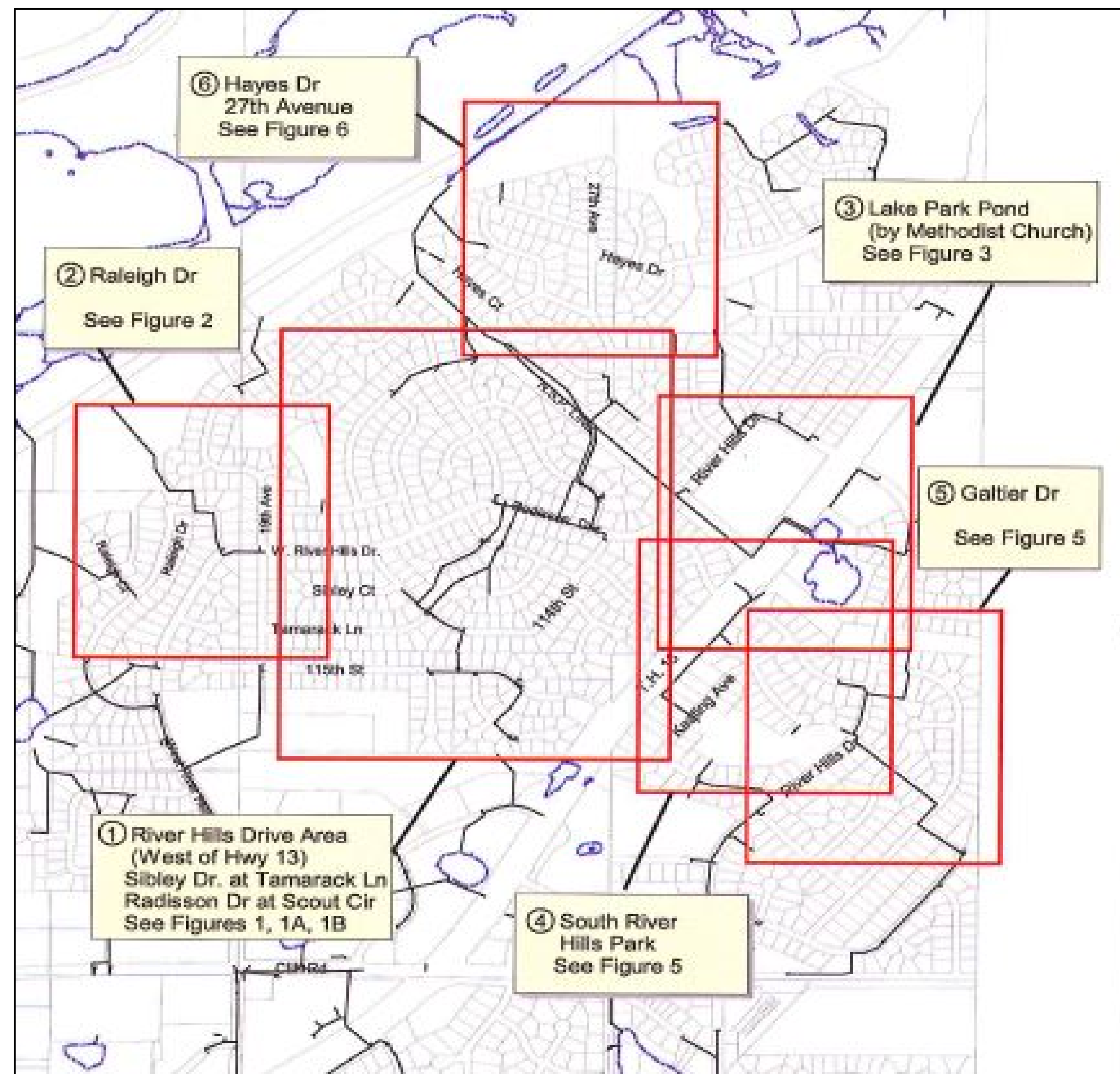
Proposed Development/Design Standards

- Similar to the MPCA Minimal Impact Design Standards (MIDS).
- MIDS is being implemented widely to streamline regulatory programs for developers and communities.
- Standardized modeling methods and credit calculation tools such as the MIDS calculator.

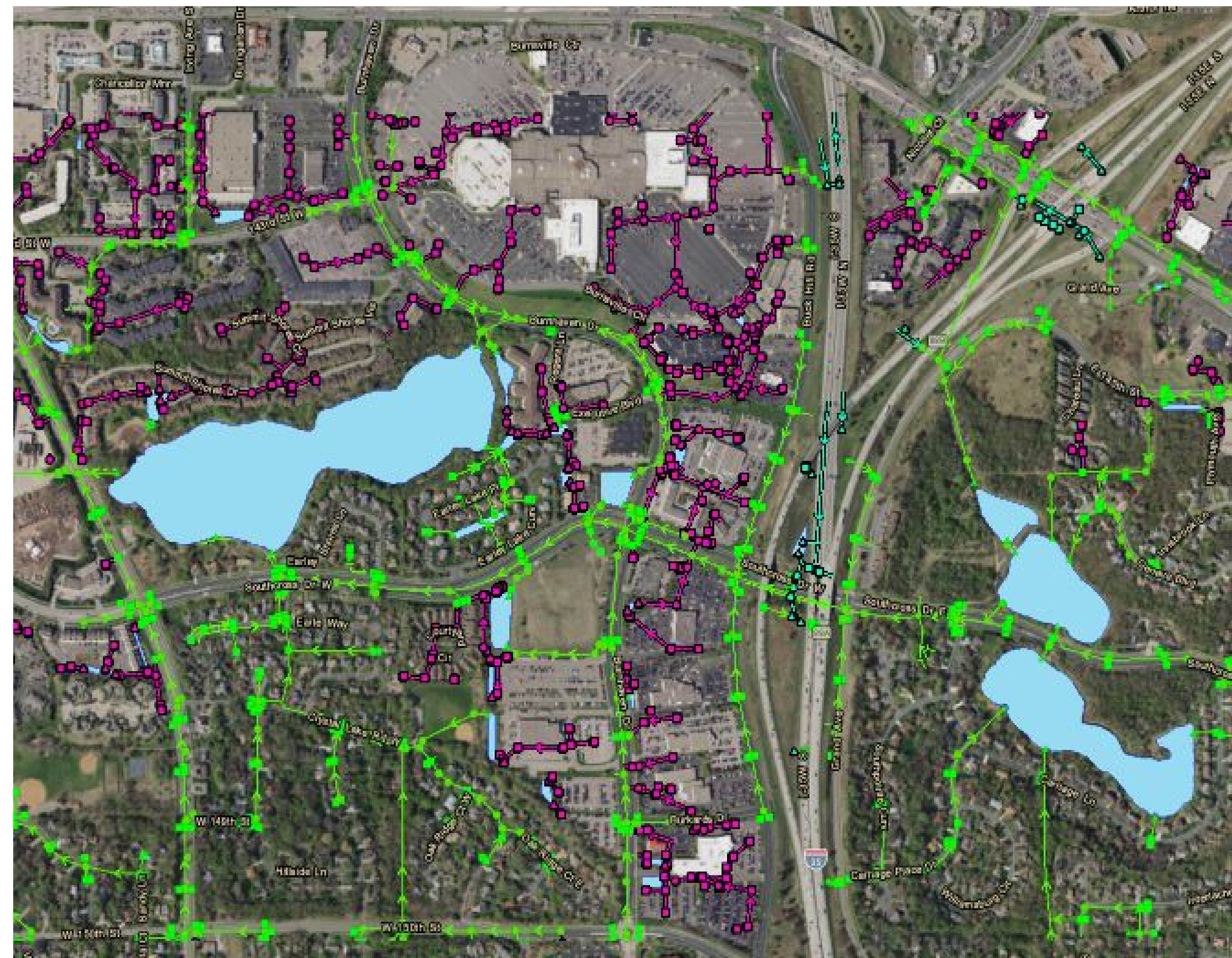
Project Size Applicability	Proposed Standards	
	Volume Control	Water Quality
<ul style="list-style-type: none"> • 0.5 acres or more of disturbed area • 5,000 square feet or more of new impervious area 	<ul style="list-style-type: none"> • 1.1 inches of runoff from new impervious must be infiltrated • Redevelopment disturbing >50% must infiltrate 1.1" from redeveloped impervious • Redevelopment disturbing <50% must infiltrate 0.55" from redeveloped impervious 	<ul style="list-style-type: none"> • Met if meeting volume control • New Development portions of site must remove 75% TP on an annual basis • Redevelopment portions of site must remove 60% TP on an annual basis

Resolved Issues and Successes

Northeast Burnsville Flood Study 2002 Plan Update



Earley Lake was removed from the 303(d) Impaired Waters list in September 2011.



Lake Water Quality Goals

A Secchi disk is used to measure the transparency in bodies of water. The depth at which the disk is no longer visible is taken as a measure of the clarity of the water which is related to the water turbidity.

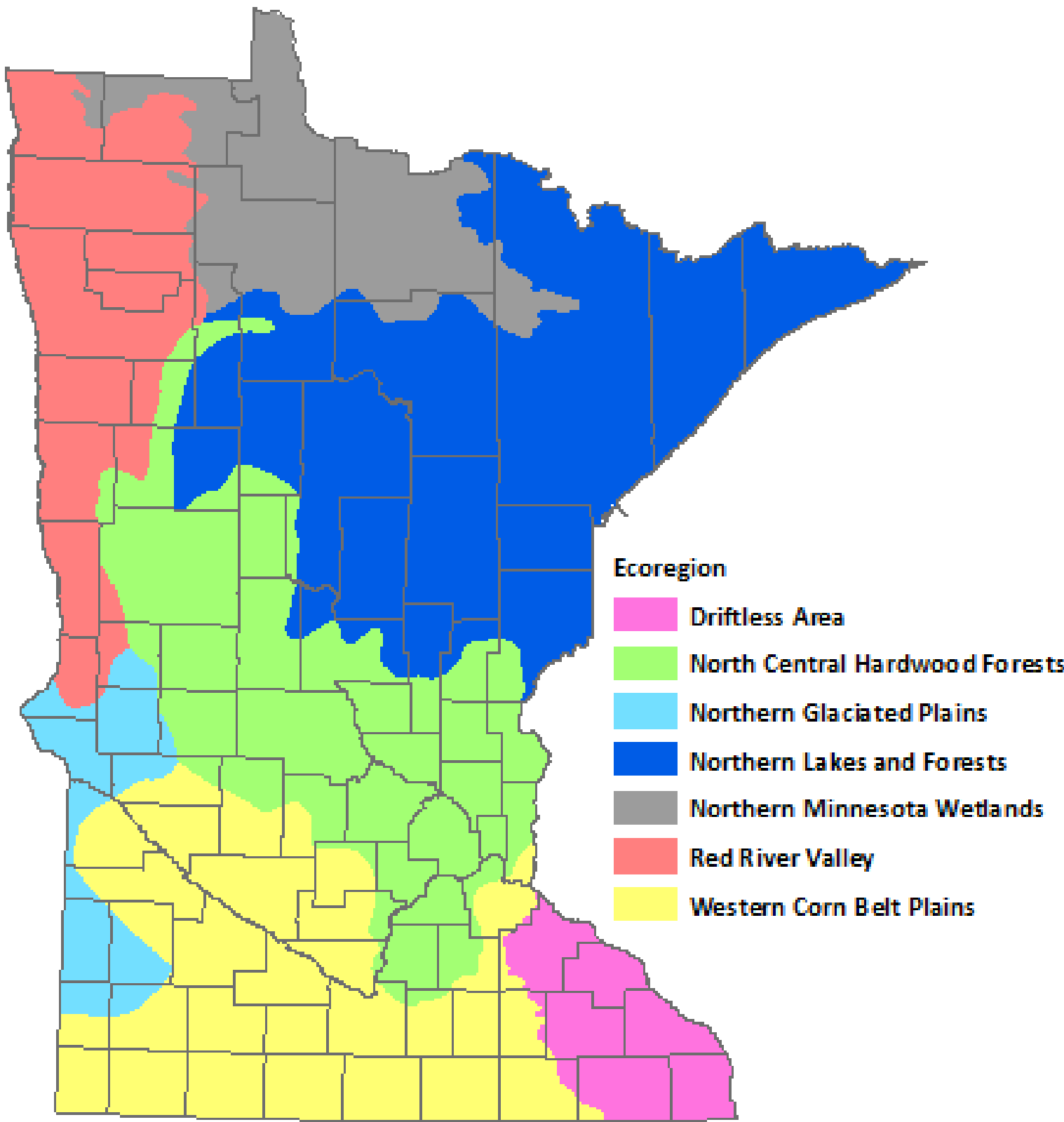
Lake	Summer Average Depth (measured in Meters)				(measured in feet)		Nutrient Impaired Lakes (1)	Monitored Lakes
	2013	2014	2015	3-Year Average	Goal	3-Year Average		
Alimagnet	0.8	0.9	0.8	0.8	1.3	2.7	4.3	✓
Crystal	1.8	2.3	2.2	2.1	2.1	6.9	6.9	✓
Earley	1.6	1.4	1.8	1.6	1.7	5.2	5.6	Note (2)
Keller	0.5	0.8	0.7	0.7	1.8	2.2	5.9	✓
Lac Lavon	3.8	4	4.2	4.0	3.6	13.1	11.8	✓
Sunset Pond	2.2	2.2	1.4	1.9	1.7	6.3	5.6	✓
Twin - South	1.7	2.1	1.8	1.9	1.4	6.1	4.6	✓
Twin - North	NA				1.7	NA	5.6	
Wood Pond	1.3	1.3	2.5	1.7	1.7	5.6	5.6	✓



1. From MPCA's 303(d) Impaired Waters List
2. Earley Lake was previously listed as impaired but has been delisted.

Parameter	North Central Hardwood Forest	
	Shallow Lakes	Deep Lakes
Phosphorus Concentration (µg/L)	60	40
Chlorophyll-a Concentration (µg/L)	20	14
Secchi disk transparency (meters)(feet)	>1 (>3.3)	>1.4 (>4.6)

Shallow lakes are defined as lakes with a maximum of 15 feet or less, or with 80% or more of the lake area shallow enough to support emergent and submergent rooted aquatic plants (littoral zone).

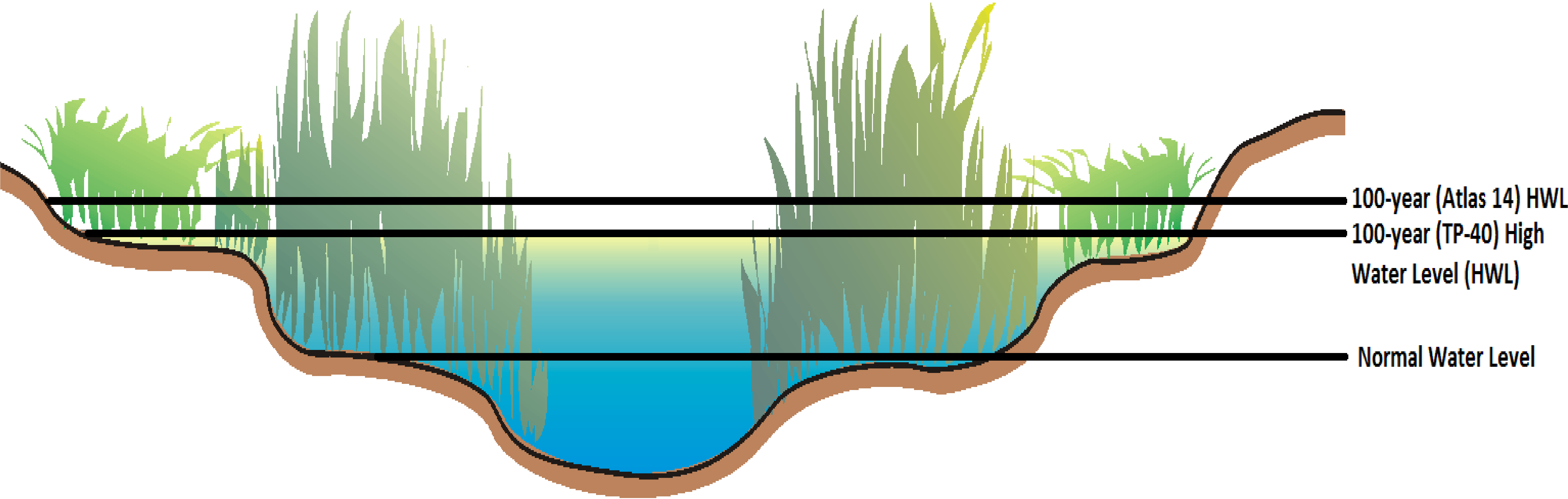


Impaired lakes in the North Central Hardwood Forest do not meet the state total phosphorus (TP) standard of 40 µg/L or less. In order for a lake to be listed as impaired, they must also not meet one of the two other eutrophication standards (chlorophyll-a and Secchi depth).



City-Wide H&H Model Update

Event Probability	Recurrence Interval	TP-40 Depth (Inches)	Atlas 14 Depth (Inches)
50%	2-year	2.8	2.9
10%	10-year	4.2	4.3
1%	100-year	6.0	7.5





Burnsville Wetland Standards

Buffers of natural vegetation must be maintained outside the wetland boundary. The buffer is beneficial to the pollutant and nutrient removal capabilities of all wetlands. **The State Buffer Law, enacted in 2015, requires protective buffers along Minnesota rivers, streams, and ditches. Burnsville is exempt from the 2015 law because it already has sufficient standards and is covered under the MS4 Stormwater Permit.**

Wetland Classification	Permanent Buffer Strip Average Width (ft)	Minimum Permanent Buffer Zone Width (ft)	Percentage Native Vegetation
Protection	50	30	Entire
Improvement	35	25	Entire
Management	25	20	Majority
Management II	20	20	Majority

Wetland replacement must replace the public value of wetlands lost as a result of an impact. The State Rules for wetland replacement ratios are:

Type of Replacement	Replacement	Minimum Replacement Ratio
Banking	Outside banking service area	2.5:1
Banking	Within banking service area	2:1
Project specific	Outside major subwatershed	2.5:1
Project specific	Within major subwatershed	2:1

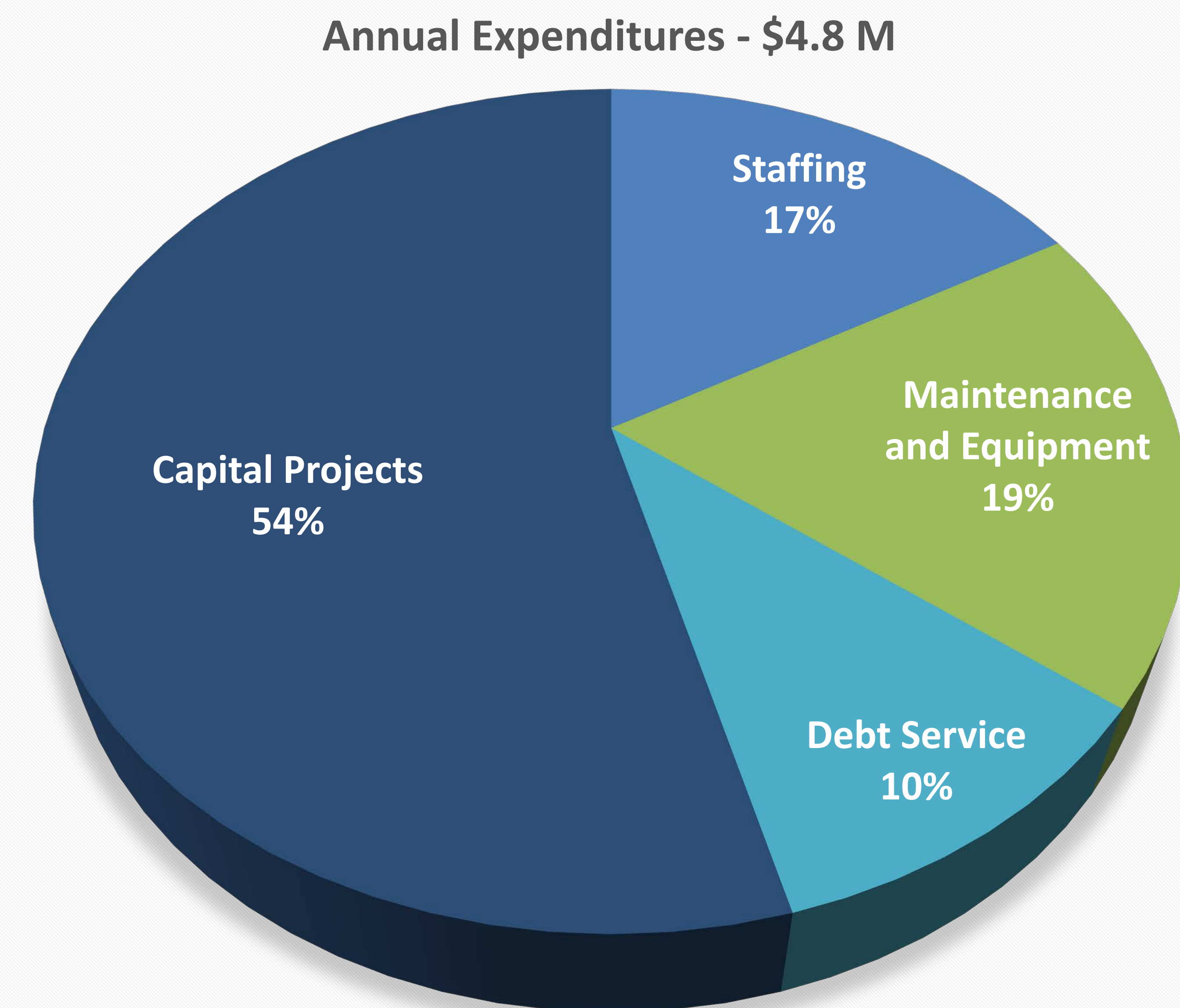


Current Program Funding

Focused on:

- Achieving the City's Water Resources Goals
- Meeting the requirements of the National Pollution Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) permit program

Annual Revenue	\$4.8 M
Annual Expenditures	
Staffing	\$0.8 M
Maintenance and Equipment	\$0.9 M
Debt Service	\$0.5 M
Capital Projects	\$2.6 M





Stormwater Management Projects

Five-Year Capital Improvements Plan

Approved Implementation Items	2017	2018	2019	2020	2021
Lake Alimagnet Phosphorous Reduction	300,000				
Street Reconstruction	450,000	450,000	450,000	500,000	500,000
Street Rehabilitation	25,000	100,000	100,000	120,000	0
Maintenance Overlays	10,000				70,000
Street Project Storm Sewer Televising	40,000	40,000	40,000	40,000	50,000
Host Landfill Grant Projects	70,000	40,000	30,000	30,000	30,000
Control Structure Black Dog Fen	250,000				
Lateral Drainage Modifications	80,000	90,000	90,000	90,000	90,000
Pond Cleanout/Outfall Imp. Program	330,000	330,000	345,000	345,000	360,000
CMP Rehabilitation	30,000	30,000	30,000	30,000	30,000
Lac Lavon Rain Gardens	20,000				
Wood Pond Alum Treatment	50,000				
County Overlays	55,000	55,000	65,000	65,000	65,000
Lift Station Rehab	250,000	250,000		250,000	
Future Ponds/Water Quality			1,000,000		
Ravine Restoration	1,000,000			500,000	
Blackdog Outfall Replacement	660,000				
WRMP Update					50,000
Contract Patching	60,000	60,000	60,000	70,000	70,000
Lac Lavon Drainage Repair	20,000				
Annual Totals	3,700,000	1,445,000	2,210,000	2,040,000	1,315,000

Additional Implementation Considerations (Date TBD)	Est. Cost
Review options and implement program to focus on elementary school water resources education activities	\$5,000
Participate in TU and DNR efforts to Restore Trout Stream #4 (??) - see article	\$2,000
Aquatic Vegetation Management - Education Materials online (Eagan example page and video)	\$10,000
Develop Summary Documents for Aquatic Plant Management on Key Lakes	\$5,000
Trail Corridor Stormwater Plan - Preliminary Review of Opportunities for BMPs and Public Education	\$10,000
Research and Develop a Private Pond Cleanout Program/Policy	\$5,000
Participate in Minnesota River Nutrient TMDL Process	\$2,000
Model Study - Review HWLs, Easements and EOFs based on new 2017 Model Update and 2016 FIS	\$50,000
Resiliency Assessment of Major Drainage Systems	\$40,000
Crystal Lake Level Updated H&H Model Analysis - Reassessment of 2002 WRMP Study Results	\$20,000
Develop policy and strategy document for managing high water levels in the Keller-Crystal-Twin Lakes System.	\$20,000
North Twin Lake Outlet Improvements - Increase Discharge Capacity (Study Basis from Crystal Model Update)	\$100,000
NPDES MS4 Permit Program - Revised Permit Application 5-Year Cycle (2028-2033)	\$10,000
MRQ - Water Resources System Coordination - Following Completion of Comprehensive Plan	\$5,000
MRQ - Maintenance/Repairs to EKS levee	\$100,000
MRQ -Water Balance and Lake Level Analysis for future Quarry Lake	\$30,000
MRQ - Prepare study for flood dewatering system to maintain Quarry Lake levels	\$20,000
Design and Construct - Cliff Road near Nicollet MH Surcharge Reduction Improvements	\$350,000



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Questions?